Amendments to the Claims

1. (Currently amended) A tissue biopsy and treatment apparatus for detecting and treating tumors, the apparatus comprising:

an elongated delivery device including a lumen, the elongated delivery device being maneuverable in tissue;

a sensor array deployable from the elongated delivery device, the sensor array including a plurality of resilient members each having a tissue piercing distal portion, at least one of the plurality of resilient members being positionable in the elongated delivery device in a compacted state and deployable with curvature into tissue from the elongated delivery device in a deployed state, at least one of the plurality of resilient members including an optical sensor operatively connected to function as an emitter and a detector, the sensor array having a geometric configuration adapted to volumetrically sample tissue at a tissue site or identify tissue at a tissue site, and an optical switching device to switch a mode of said optical sensor;

at least some of said resilient members being electrodes which can be coupled to an RF energy source for ablating tissue when electrical energy is supplied to the electrodes from the source; and

wherein the sensor array is configured to measure a spectral profile of at least one portion of the tissue site.

2-4. (Cancelled)

5. (Currently amended) The apparatus of claim 1, wherein the at least one portion includes a first portion and a second portion, the sensor array being configured to substantially simultaneously measure a first spectral profile [[or]]of the first portion and a second spectral profile of the second portion.

6. (Previously presented) The apparatus of claim 1, further comprising:

logic resources coupled to one of the sensor array, or the sensor; and

wherein the logic resources are configured to identify or differentiate tissue responsive to a signal from one of the sensor or the sensor array.

7. (Currently amended) The apparatus of claim 6, wherein the logic resources are configured to distinguish between normal and abnormal tissue, wherein the abnormal tissue ~~including~~includes at least one of abnormally mutated tissue, abnormally dividing tissue, cancerous tissue, metastatic tissue, immortal tissue, or hypoxic tissue.

8. (Cancelled)

9. (Original) The apparatus of claim 6, wherein the logic resources are configured to locate a position of the energy delivery device relative to one of a tumor mass or an ablation volume.

10. (Currently amended) The apparatus of claim 9, wherein the logic resources are ~~configured to signal~~operatively connected to one of a monitoring device or a display device to signal the position of the energy delivery device relative to the tumor mass or to the ablation volume.

11. (Previously presented) The apparatus of claim 10, wherein the logic resources are configured to interface with the display device to graphically display the position of the energy delivery device relative to the tumor mass or the ablation volume.

12. (Previously presented) The apparatus of claim 6, wherein the logic resources are configured to identify a clinical endpoint for a tissue ablation procedure.

13. (Cancelled)

14. (Currently amended) A tissue biopsy and treatment apparatus for detecting and treating tumors, the apparatus comprising:

an elongated delivery device including a lumen, the elongated delivery device being maneuverable in tissue;

a sensor array deployable from the elongated delivery device, the sensor array including a plurality of resilient members each having a tissue piercing distal portion, at least one of the plurality of resilient members being positionable in the elongated delivery device in a compacted state and deployable with curvature into tissue from the elongated delivery device in a deployed state, at least one of the plurality of resilient members including an optical sensor operatively connected to function as an emitter and a detector, the sensor array having a geometric configuration adapted to volumetrically sample and measure a spectral profile of at least one portion of a tissue site to differentiate or identify tissue at the tissue site, and an optical switching device to switch a mode of said optical sensor; and

at least some of said resilient members being electrodes which can be coupled to an RF energy source for ablating tissue when electrical energy is supplied to the electrodes from the source~~; and~~.

15-21. (Cancelled)

22. (Currently amended) The apparatus of claim 1, wherein the optical sensor comprises at least one of a light conducting member or an optical fiber positionable within a lumen of at least one of the plurality of resilient members, wherein the light conducting member or the optical fiber is ~~configured to be~~ coupled to a light source or a coherent light source.

23. (Currently amended) The apparatus of claim 22, wherein the sensor comprises an emitting ~~optical fiber~~ and a detecting optical fiber positionable within the lumen of the at least one resilient member.

24. (Original) The apparatus of claim 1, wherein the plurality of resilient members includes a first resilient member having a first lumen with a first positionable optical

sensing member and a second resilient member having a second lumen with a second positionable optical sensing member.

25. (Currently amended) The apparatus of claim 24, wherein the, first sensing member is a first optical fiber configured as ~~one of~~ an emitter ~~or~~and a detector and the second optical sensing member is a second optical fiber configured as ~~one of~~ an emitter ~~or~~and a detector.

26-27. (Cancelled)

28. (Currently amended) The apparatus of claim 1, ~~wherein the~~at least one of the plurality of resilient members including a second sensor ~~is~~ configured to detect a change in a tissue property.

29. (Currently amended) The apparatus of claim 28, wherein the property includes at least one of a physiologic property, a metabolic property, a thermal property, a temperature, an electrical property, an impedance, an optical property, an absorbance, a reflectance, a dimensional property, and ~~or~~ a pH.

30. (Cancelled)

31. (Previously presented) The apparatus of claim 1, wherein the sensor array is configured to detect an indicator of cell necrosis.

32. (Currently amended) The apparatus of claim 31, wherein the indicator of cell necrosis is selected from the group consisting of a tissue vapor bubble, a rate of tissue vapor bubble formation, a denatured tissue protein, a denatured DNA, and an intracellular fluid.

33. (Cancelled)

34. (Original) The apparatus of claim 1, wherein the sensor array is configured to distinguish between non cancerous and cancerous tissue.

35-41. (Cancelled)

42. (Currently amended) A tissue biopsy and treatment apparatus for detecting and treating tumors, the apparatus comprising:

an elongated delivery device including a lumen, the elongated delivery device being maneuverable in tissue;

a sensor array deployable from the elongated delivery device, the sensor array including a plurality of resilient members each having a tissue piercing distal portion, at least one of the plurality of resilient members being positionable in the elongated delivery device in a compacted state and deployable with curvature into tissue from the elongated delivery device in a deployed state, at least one of the plurality of resilient members including an optical sensor operatively connected to function as an emitter and a detector, the sensor array having a geometric configuration adapted to volumetrically sample tissue at a tissue site or identify tissue at a tissue site, and an optical switching device to switch a mode of said optical sensor;

at least some of said resilient members being electrodes which can be coupled to an RF energy source for ablating tissue when electrical energy is supplied to the electrodes from the source;

wherein the sensor includes a first sensor and a second sensor; and

wherein at least one of the first or the second sensors is selected from the group consisting of an emitter, an electromagnetic emitter, an optical emitter, an acoustical emitter, a laser, and an LED.

43. (Original) The apparatus of claim 42, wherein the emitter is substantially positioned within a volume defined by the sensor array.

44. (Original) The apparatus of claim 42, wherein the emitter is substantially positioned outside of a volume defined by the sensor array.

45. (Original) The apparatus of claim 42, wherein the emitter emits a reference signal and a probe signal.

46. (Previously presented) The apparatus of claim 45, wherein the sensor includes a third sensor adapted to detect the reference signal.

47. (Currently amended) The apparatus of claim 46, wherein the third sensor is adapted to detect the reference signal with substantially no ~~affect~~effect from tissue.

48. (Previously presented) The apparatus of claim 47, wherein the third sensor is positioned substantially adjacent or in proximity to the emitter.

49. (Original) The apparatus of claim 42, wherein the emitter is configured to emit electromagnetic energy over a selectable frequency range.

50. (Previously presented) The apparatus of claim 1, further comprising:

at least one of (i) the elongated delivery device or (ii) at least one of the plurality of the plurality of resilient members being adapted for fluid delivery therethrough to an infusion port disposed on at least one of the elongated delivery device or at least one resilient member of the plurality of resilient members.

51. (Cancelled)

52. (Currently amended) A tissue biopsy and treatment apparatus for detecting and treating tumors, the apparatus comprising:

an elongated delivery device including a lumen, the elongated delivery device being maneuverable in tissue;

a sensor array deployable from the elongated delivery device, the sensor array including a plurality of resilient members each having a tissue piercing distal portion, at least one of the plurality of resilient members being positionable in the elongated delivery device in a compacted state and deployable with curvature into tissue from the elongated delivery device in a deployed state, at least one of the plurality of resilient members including an optical sensor operatively connected to function as an emitter and a detector, the sensor array having a geometric configuration adapted to volumetrically sample tissue at a tissue site or identify tissue at a tissue site, and an optical switching device to switch a mode of said optical sensor;

at least some of said resilient members being electrodes which can be coupled to an RF energy source for ablating tissue when electrical energy is supplied to the electrodes from the source; and

wherein the sensor array is configured to detect a marking agent.

C1 cont.

53. (Original) The apparatus of claim 52, wherein the sensor array is configured to detect an absence of the marking agent.

54. (Previously presented) The apparatus of claim 52, wherein the sensor array is configured to obtain one of an improved resolution or an improved sensitivity.

55. (Original) The apparatus of claim 52, further comprising:

a source of marking agent fluidically coupled to one of the elongated delivery device or at least one of the plurality of resilient members.

56. (Currently amended) The apparatus of claim 55, wherein the marking agent is selected from the group consisting of an optical marker, a fluorescent marker, a radioactive-marker, a temperature sensitive marker, an antibody, a liposome, an antibody-coated liposome, a microsphere, and a chemotherapeutic agent.

57. (Previously presented) The apparatus of claim 55, wherein the marking agent is reactive to a delivery of energy .

58. (Original) The apparatus of claim 55, wherein the marking agent is configured to enhance at least one of the delivery of energy to a least a portion of the tumor volume or the degree of thermal injury to the at least a portion of the tumor volume.

59. (Original) The apparatus of claim 58, wherein the at least a portion of the tumor volume is a selectable portion.

60. (Original) The apparatus of claim 55, wherein the marking agent includes a plurality of marking agents.

61. (Currently amended) The apparatus of claim 55, wherein the marking agent is configured to detect one of a gene, a gene fragment, a genetic variant, a genetic mutation, a DNA sequence, a DNA fragment, and ~~or~~ an expressed sequence tag.

62. (Previously presented) The apparatus of claim 60, wherein the plurality of marking agents include a first marking agent configured to mark a first tissue condition or first tissue type and a second marking agent configured to mark a second tissue condition or a second tissue type.

63. (Original) The apparatus of claim 62, wherein at least one of the first or the second tissue conditions is a cancerous tissue condition.

64. (Previously presented) The apparatus of claim 62, wherein at least one of the first or second tissue conditions is selected from the group consisting of a thermal injury condition, a tissue necrosis, a tissue ablation, a tissue vaporization, a tissue coagulation, and a cell membrane rupture.

65. (Original) The apparatus of claim 62, wherein the first tissue condition is a cancerous condition and the second tissue condition is a thermal injury condition.

66. (Original) The apparatus of claim 62, wherein the first tissue condition is a first tissue temperature and the second condition is a second tissue temperature.

67. (Previously presented) The apparatus of claim 66, wherein the second tissue temperature is selected from the group consisting of a tissue injuring temperature, a tissue necrosing temperature, a tissue ablative temperature, and a tissue vaporization temperature.

C1 CONT.

68. (Original) The apparatus of claim 62, wherein the plurality of marking agents includes a third marking agent.

69. (Previously presented) The apparatus of claim 60, wherein the plurality of marking agents includes a first marking agent coupled to a first marking agent carrier, wherein the first marking agent carrier is configured to release the first marking agent at a selectable temperature, tissue condition or tissue chemical concentration.

70. (Original) The apparatus of claim 69, wherein the selectable temperature is in the range of about 40° C to about 60° C.

71. (Original) The apparatus of claim 69, wherein the selectable temperature is in the range of about 45° C to about 55° C.

72. (Previously presented) The apparatus of claim 69, wherein the plurality of marking agents includes a second marking agent coupled to a second marking agent carrier, wherein the second marking agent carrier is configured to release the first marking agent at a selectable temperature.

73. (Original) The apparatus of claim 72, wherein the second selectable temperature is in the range of about 40° C to about 60° C.

74. (Original) The apparatus of claim 72, wherein the second selectable temperature is in the range of about 45° C to about 55° C.

75-78. (Cancelled)

79. (Previously presented) The apparatus of claim 1, further comprising:

a handpiece coupled to one of the elongated delivery device or the sensor array; and

a first advancement device at least partially positionable in one of the handpiece or the elongated delivery device, the advancement device being configured to advance at least one of the plurality of resilient members.

80. (Previously presented) The apparatus of claim 79, further comprising:

a second advancement device at least partially positionable in one of the handpiece or the elongated delivery device, the second advancement device configured to advance a second resilient member of the at least one plurality of resilient members independent of an advancement of the first advancement device.

81-82 (Cancelled)